Speech-based Telephone Services for Disseminating Development Related Information

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SaLT

ICT4D

Information and Communication Technologies for Development

- More and better information and communication furthers the development of a society.

- Can lead to better management of available resources, improved monitoring & reporting of corruption and more connectivity among people

To achieve impact at a massive scale:

- Robust solutions to reach the masses using available means with minimum resource expenditures

How do you reach low-literate masses?

- TV, radio are non-interactive
- PCs are not feasible
- Smart phones are not always feasible
- Text is problematic for the non-literate

Speech over <u>simple</u> phones is a viable way to reach low-literate masses

Our Research…

Speech-based services over simple phones
to facilitate **development** where **information**
and **connectivity** are the missing components

Examples include speech-based:
- Marketplace (Craig's List), Citizen Journalism, message boards/blogs
- Health, agriculture, jobs, education,…
- Information gathering through surveys and polls,…

Challenges: User Training, Motivation, and Mass Dissemination

1. How do you train low-literate masses to use of telephone based speech interfaces?
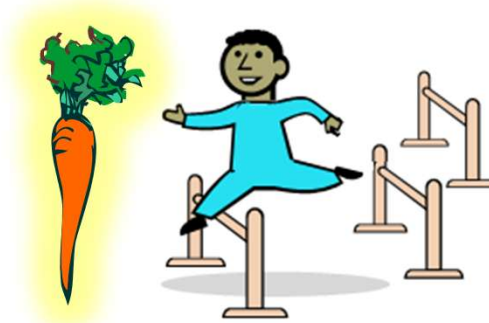
- Explicit user training is not scalable.

2. How to advertise / communicate to masses who don't read?
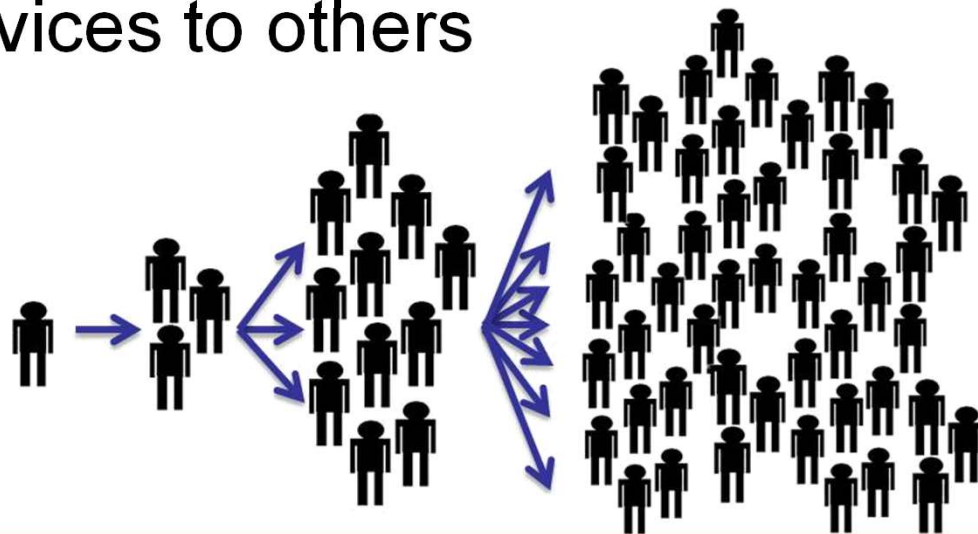
Our Strategy: Viral Entertainment

Use simple voice-based entertainment to:

1. Incentivize people to train themselves

2. Spread these services to others

Use *Viral Entertainment* as a vehicle for disseminating *Development* related telephone-based services

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Polly (میاں مٹھو)

Polly is a **telephone-based, voice-based** service which allows users to make a short recording of their voice, **modify it** and **send the modified version to friends**.

This brief video depicts a typical user interaction with Polly

USER INTERFACE

Deployment in Lahore

Started with **5 users**

- After **a year**:
    - **636,000** calls
    - **165,000** users
    - Spreading to **1,000 new people daily**

- **34,000** people used the job search service
- listened **386,199** times to **728** job ads
- and **19,000** users forwarded them **34,000** times to their friends.

Raza et al. 2013, ACM SIGCHI, *best paper award.*
Raza et al. 2012, ICTD.

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Development Services

- **Job Audio-Browser**: Audio browse newspaper job ads appropriate for low-skilled workers (Pakistan; 2011-12)

- **Babajob.com[1]:** Audio portal for entry level jobs (India; 2013-14)

- **Ebola Healthline[2]**: Browse and spread authoritative messages about Ebola (Guinea; 2014-present)

[1] Raza et al. 2016, ICTD.

[2] Wolfe et al. 2015, SLaTE, InterSpeech.

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Baang (بانگ)

A voice-based "Reddit" for the low-literate

Users can:

- Post an audio message (*baang*)
- Browse posts recorded by others
  - Vote up
  - Vote down
  - Report abuse
  - Comment

Baang (بانگ)

Within three months of its launch *Baang* has accumulated:

- **8,000** posts by **900** users
- Played more than **393,000** times by **1,500** users
- **101 hours** of speech data
- Among the most popular baangs are:
  - Songs
  - Religious poetry (naat, hamd etc.)
  - Quranic recitation
  - Jokes, quotes etc.

Sawaal (سوال)

A voice-based Quora/Stack Overflow for the low-literate

Users can:

- Post a multiple choice question
- Browse questions posted by others
  - Vote up
  - Vote down
  - Report abuse
  - Forward to friends

Sawaal (سوال)

Within a month *Sawaal* accumulated:

- **2,700** questions by **160** users
- Were attempted **74,000** times by **400** users
- Forwarded **6,800** times to friends
- **38 hours** of speech data
- Categories
  - Sports
  - Religion
  - History
  - General knowledge.

Hello Rozgar (ہیلو روزگار)

A voice portal where:

- Registered employers can post jobs and browse profiles of interested applicants

- Registered users looking for jobs can browse and apply for nearby jobs

- Registered trainers can post training/apprenticeship vacancies

- Registered users looking for skill training opportunities can browse and apply for nearby vacancies.

Hello Rozgar (ہیلو روزگار)

Over the last six months, Hello-Rozgar has been called **63,000** times by **49,000** users

- **180** registered employers
- **2,600** registered employees
- **407** registered trainees

For more details about C-SaLT and to apply for research positions, please visit

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Thank you!

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